



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/565,956

01/26/2006

Yusai Murakami

16169.25.6

8450

22913 7590 06/12/2008

WORKMAN NYDEGGER  
60 EAST SOUTH TEMPLE  
1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER

RAMADAN, RAMY O

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

06/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,956	<b>Applicant(s)</b> MURAKAMI ET AL.	
	<b>Examiner</b> RAMY RAMADAN	<b>Art Unit</b> 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03/04/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,10-13,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,10-13,21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/26/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-2, 10-13 and 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1, the limitations "a step of, in the case that specific selection conditions are satisfied, calculating a no-load voltage as a voltage intercept at a current of zero in a straight-line approximation obtained by statistical processing with respect to the plurality of pairs of data" and "a step of, in the case that specific current conditions or voltage conditions continue to be met for a certain amount of time, calculating an open circuit voltage from the terminal voltage of the secondary battery" are objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "in the case that" is indefinite since it is not clear whether the limitations following the phrase are part of the claimed invention. The phrase does not present the following limitations as positive limitations, as it is not clear whether the limitations are actually occurring. In addition the term "the case" lacks antecedent basis and it is not clear whether the usage of the term twice in two different limitations is intended to present a single case or first and second cases. Furthermore, it is not clear whether the terms "a no-load voltage" and "an open circuit voltage" are similar or distinctive from each other. For examination purposes, the limitations have been interpreted as not occurring since the claim language as presented teach that in all other cases other than the case presented in the claim, the

limitations are not occurring. Finally, the alternative limitations and the use of the term "or" in the claim render the claim as indefinite and confusing.

As per claim 12, the limitations "a step of, in the case that specific selection conditions are satisfied, calculating a no-load voltage as a voltage intercept at a current of zero in a straight-line approximation obtained by statistical processing with respect to the plurality of pairs of data" and "a step of, in the case that specific current conditions or voltage conditions continue to be met for a certain amount of time, calculating an open circuit voltage from the terminal voltage of the secondary battery" are objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the same reasons mentioned above.

As per claims 2 and 13, the limitations "an adjustment constant ( $\Delta V_{bc}$ ) and adjustment coefficient ( $K_b$ ), for the change in the no-load voltage or the open circuit voltage ( $\Delta V_b$ ), that are determined depending on the physical properties and the state of charging or discharging of the secondary battery", "an electromotive force change constant ( $K_{eq}$ ), which is a change in an electromotive force with respect to the charge/discharge electricity amount in an usable domain of state of charge, that is determined depending on the physical properties and the state of charging or discharging of the secondary battery" and "a polarization voltage generation constant ( $K_{pol}$ ), which is a change in a polarization voltage with respect to the charge/discharge electricity amount in the usable domain of state of charge, that is determined depending on the physical properties and the state of charging or discharging of the secondary battery" are objected to as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the invention. First, the terms “the physical properties” and “the state of charging or discharging” lack antecedent basis. Second, it is not clear whether the term “the charge/discharge electricity amount” is the same as “the estimated charge/discharge electricity amount” or whether they are distinct. Third, it is not clear whether the term “state of charge” is the same as “the state of charging or charging of the secondary battery” or whether they are distinct.

As per claims 10 and 11, the limitation “a step of calculating an estimated charge/discharge electricity amount using the method for estimating a charge/discharge electricity amount of a secondary battery according to claim 1” is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, since it is not clear whether the claim is an independent claim or a dependent claim from claim 1. The claim is presented as a dependent claim, and the claim language cites using “the method” of claim 1, which is improper. In addition, the term “the method” lacks antecedent basis. Applicant is requested to clearly present the claims as independent or dependent from claim 1.

As per claim 21 and 22, the limitation “based on the estimated charge/discharge electricity amount calculated by the apparatus for estimating a charge/discharge electricity amount of a secondary battery according to claim 12” is objected to as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, since it is not clear whether the claim is an independent claim or a dependent claim from claim 12. The claim is presented as a

dependent claim, and the claim language cites using "the apparatus" of claim 12, which is improper. In addition, the term "the apparatus" lacks antecedent basis. Applicant is requested to clearly present the claims as independent or dependent from claim 1.

The applicant is requested to review the claims and determine any further errors that have not been pointed out by the examiner, since the claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**3. Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji et al. (US 6,160,380).**

As per claim 1, Tsuji discloses and shows in Figs. 1, 15 and 16, a method of estimating a residual capacity of a battery comprising:

a step of measuring a pair of data consisting of a current (I) and a terminal voltage (V) for a secondary battery (100), thus obtaining a plurality of pairs of data (Col. 6, lines 43-50 and Col. 13, lines 5-31);

a step of determining the open circuit voltage (E) of the battery (100) (Col. 13, lines 25-31);

a step of determining a change in the open circuit voltage (E) over a predetermined period of time and determining a battery capacity and a discharged electric amount (C(Ah)) (estimated charge/discharge amount) based on the change in the open circuit voltage (Col. 13, lines 63-67 and Col. 14, lines 1-36 and lines 64-67).

As per claim 12, the apparatus merely discloses the elements used to perform the steps of the method as disclosed above and since each step must be present to for the functionality of the elements, the apparatus as claimed would be inherent in view of the method as disclosed by Tsuji.

**5. Claims 10-11 and 21-22 are rejected under 35 U.S.C. 102(a, b or e) as being anticipated by Applicant Admitted Prior Art (APA).**

As per claims 10 and 11, APA discloses a conventional method for determining a state of charge (SOC) and a polarization voltage of a secondary battery based on the charge/discharge electricity amount obtained by measurements from a current sensor (Applicant's disclosure, pages 1-2).

As per claims 21 and 22, the apparatus merely discloses the elements used to perform the steps of the method as disclosed above and since each step must be present to for the functionality of the elements, the apparatus as claimed would be inherent in view of the method as disclosed by APA.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAMY RAMADAN whose telephone number is (571) 272-9761. The examiner can normally be reached on Mon-Fri 7:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on (571) 272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

6/82008

/Gary L. Laxton/  
Primary Examiner  
Art Unit 2838

/RR/